United International University (UIU)

Dept. of Computer Science and Engineering (CSE)

CSE 1111 – Structured Programming Language

Final Exam Question Patterns

Strings

1. Find the output of the following code:

```
#include <stdio.h>
#include <string.h>
int main() {
    char str1[50] = "Programming";
    char str2[50] = "Languages";
    int len = strlen(str1);
    for (int i = 0; i < strlen(str2); i++)
        str1[len - i - 1] = str2[i];
    strncat(str1, str2, 3);
    for (int j = 0; j < 5; j++)
        str1[j] = str2[strlen(str2) - j - 1];
    printf("str1: %s\n", str1);
    printf("str2: %s\n", str2);
    return 0;
}
```

2. Find the output of the following code:

```
#include<stdio.h>
#include<string.h>
void main() {
    char data[100] = "Data";
    char field[100] = "Science";
    int pos;
    strncpy(data, field, 3);
    for(pos = 0; data[pos] != '\0'; pos++)
        data[pos] += 4;
    strncat(field, data, 2);
    printf("Data: %s\n", data);
    field[pos - 1] = '\0';
    printf("Field: %s\n", field);
    for(pos = 2; pos > 0; pos--)
        strrev(field);
    printf("Final Output: %s", field);
}
```

3. Find the output of the following code:

```
#include <stdio.h>
#include <string.h>
int main() {
    char str1[50] = "CS-1010";
    char str2[50] = "Introduction to Programming";
    int index = strlen(str1) / 2 - 1;
    for (int k = 0; index + k < strlen(str1); k += 2) {
        str1[index + k] = str2[k];
    }
    strcat(str1, str2);
    if (strcmp(str2, str1) > 0) {
        strncat(str1, " Fun and engaging!", 18);
    } else {
        strncat(str2, " Fun and engaging!", 18);
    }
    printf("%s\n", str1);
    printf("%s\n", str2);
    return 0;
}
```

4. Show manual tracing (every change) of variables i, k, str1, and str2 of the following code segment:

```
#include <stdio.h>
#include <string.h>
int main() {
    char str1[50] = {'\0'}, str2[50] = "EXCELLENCE";
    strcpy(str1, "ACHIEVEMENT");
    int i = strlen(str1) * 0.5;
    for(int k = 0; str2[k] != '\0'; ++k) {
        str1[i + k] = str2[k];
    }
    strrev(str1);
    strcat(str1, str2);
    if(strcmp(str2, str1) >= 0) {
        strcpy(str1, "STUDY HARD");
    } else {
        strcpy(str2, "NEVER GIVE UP");
    }
    return 0;
}
```

5. Manually trace the following code and show the values of str1 and str2 in each step. Assume “Hello World”, and “Programming is fun” as input from keyboard for str1 and str2 respectively.

```
char str1[100], str2[100], str3[100];
gets(str1);
scanf("%s", str2);
strncpy(str3, str1, 8);
strncat(str2, str3, 4);
strcpy(str3, str2);
strncat(str3, str1, 3);
if (strcmp(str2, str3) > 0) {
     strncpy(str1, str3, 2);
}
else {
     strncpy(str2, str3, 2);
}
```

6. Write a program in C to find the length of a string without using any library function.

Sample Input	Sample Output
“My name is andy”	15
“Abc 123 7&*&*”	13

7. Program that will take as input a string, and toggle cases of all the letters.

Sample Input	Sample Output
SPL Laboratory	spl lABORATORY
United International University	uNITED iNTERNATIONAL uNIVERSITY

8. Write a program in C to print individual characters of a string in reverse order.

Sample Input	Sample Output
A man, a plan, a canal	Lanac a, nalp a, nam A

9. Write a program in C to concatenate two strings without using any library function.

Sample Input	Sample Output
“My name ” “is andy”	“My name is andy”
“123abc” “*A*B”	“123abc*A*B”

10. Write a program in C to count the total number of alphabets, digits and special characters in a string.

Sample Input	Sample Output
Enter a string: Welcome to CSE 1111 SPL	Number of Alphabets in the string is : 15 Number of Digits in the string is : 4 Number of Special characters in the string is : 5 (space & '\0')

11. Write a program in C to count how many vowels are there in a string.

Sample Input	Sample Output
"My name is andy"	4
"Abc 123 7&*&*"	1

12. Write a program in C to count the number of words in a string.

Sample Input	Sample Output
"My name is andy"	4
"Abc 123 7&*&*"	3

13. Write a program in C to remove all repeated characters in a string.

Sample Input	Sample Output
"i like programming in C"	"i lkeprogamnC"
"My name is Andy"	"My nameisAd"